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IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his)
capacity as ATTORNEY GENERAL)
OF THE STATE OF OKLAHOMA and)
OKLAHOMA SECRETARY OF THE)
ENVIRONMENT C. MILES TOLBERT,)
in his capacity as the)
TRUSTEE FOR NATURAL RESOURCES)
FOR THE STATE OF OKLAHOMA,)
Plaintiff,)
vs.) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,)
Defendants.)

VOLUME II OF THE VIDEOTAPED
DEPOSITION OF CHRISTOPHER TEAF, PhD, produced
as a witness on behalf of the Defendants in the
above styled and numbered cause, taken on the 31st
day of July, 2008, in the City of Tulsa, County of
Tulsa, State of Oklahoma, before me, Lisa A.
Steinmeyer, a Certified Shorthand Reporter, duly
certified under and by virtue of the laws of the
State of Oklahoma.

A P P E A R A N C E S

FOR THE PLAINTIFFS: Mr. David Page
Mr. Richard Garren
Attorneys at Law
502 West 6th Street
Tulsa, OK 74119

FOR TYSON FOODS: Mr. Patrick Ryan
Attorney at Law
119 North Robinson
Suite 900
Oklahoma City, OK 73102

FOR CARGILL: Ms. Theresa Hill
Attorney at Law
100 West 5th Street
Suite 400
Tulsa, OK 74103

FOR SIMMONS FOODS: Mr. John Elrod
Attorney at Law
211 East Dickson Street
Fayetteville, AR 72701

FOR PETERSON FARMS: Mr. Scott McDaniel
Attorney at Law
320 South Boston
Suite 700
Tulsa, OK 74103

FOR GEORGE'S: Mr. Woodson Bassett
Attorney at Law
221 North College
Fayetteville, AR 72701

1 FOR CAL-MAINE:

Mr. Robert Sanders
Attorney at Law
2000 AmSouth Plaza
P. O. Box 23059
Jackson, MS 39225
(Via phone)

5 FOR WILLOW BROOK:

Ms. Jennifer Griffin
Attorney at Law
314 East High Street
Jefferson City, MO 65109
(Via phone)

I N D E X

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1 (Whereupon, the deposition began at
2 8:16 a.m.)

3 VIDEOGRAPHER: We are now on the Record for
4 Volume II of the deposition of Dr. Christopher Teaf.

5 The date is July 31st, 2008. The time is 8:15 a.m. 08:16AM

6 All counsel that were present at the deposition
7 yesterday are present today. Thank you.

8 CHRISTOPHER TEAF, PhD,
9 having first been duly sworn to testify the truth,
10 the whole truth and nothing but the truth, testified
11 as follows:

12 CONTINUED DIRECT EXAMINATION

13 BY MR. RYAN:

14 Q Good morning, Dr. Teaf.

15 A Morning. 08:17AM

16 Q I want to -- we left off yesterday talking
17 about these -- I'm reminded one of the things we
18 left off to do is I wanted to offer your report as
19 Exhibit 4 to the deposition for the Record.

20 When we broke yesterday, we were talking about 08:17AM

21 these tables, B4 and B5, and I guess I left without
22 a complete understanding of what you did. So I want
23 to go over that just a little more this morning.

24 First of all, how did you get to be the one elected
25 to do this, count the animals and figure all this 08:17AM

1 **A** No, that's not what that says.

2 **Q** Okay. So that limiting factor is not relevant
3 to an upset, only end-of-pipe discharge?

4 **A** That's correct.

5 **Q** Now, you testified previously that in your 02:16PM
6 opinion, there may be people becoming sick from
7 recreational contact in the Illinois River but
8 they're untraceable because they go to distant
9 states and counties. Does that fairly capture your
10 opinion? 02:16PM

11 **A** That's the explanation in part. The other
12 explanation is that there's a delay in the
13 appearance of symptoms, that is, it's generally on
14 the order of one to -- a day to a week before an
15 illness will manifest itself bacterially. 02:17PM

16 **Q** Now, there's at least one expert being offered
17 on behalf of the State who has made some effort in
18 trying to characterize the number of visits to the
19 river, how many people come each year and what they
20 do, Dr. Caneday, but I haven't seen any data that 02:17PM
21 indicates where those people come from who visit the
22 river. Have you seen any such data?

23 **A** No, I've not.

24 **Q** And has there been any attempt to characterize
25 or to find out if your theory that people are coming 02:17PM

1 from Missouri and Kansas and Arkansas is true?

2 MR. PAGE: Object to the form.

3 A I can't point you to a document, but I know

4 I've reviewed documents that point out that the

5 visitors to the Illinois River come from a variety 02:18PM

6 of places. I probably will have to look into this

7 more after today, but I would say that I believe

8 that those are correct, and I believe that the

9 proximity to those areas -- of those areas to the

10 Illinois River and the attraction of the Illinois 02:18PM

11 River historically make that quite likely.

12 Q Have you read Dr. Caneday's deposition?

13 A No.

14 Q Received any kind of summary of his testimony?

15 A No. 02:18PM

16 Q My understanding is that Dr. Caneday's opinion

17 is that the use of the Illinois River is largely

18 dominated by locals, not families coming from far

19 away?

20 A I'll certainly look at that when I have an 02:19PM

21 opportunity.

22 Q All right. Well, you made comment a moment

23 ago. Are you under the impressions that you can

24 change your opinions after today, that this is a --

25 that you can just change them as new information 02:19PM

1 comes out or --

2 **A** I'm under the impression that if additional
3 information becomes available to me and I elect to
4 modify an opinion, I can notify counsel of that and
5 they can notify you, and we can explore it to 02:19PM
6 whatever degree we need to.

7 **Q** All right. Have you been told to continue
8 working and modifying your opinions?

9 **A** I haven't been told not to, and I always would
10 do that. 02:19PM

11 **Q** All right. You haven't been told that the
12 report you submitted is to be your full and final
13 opinion for the trial on the merits; you weren't
14 told that?

15 **A** Up to the point at which it was filed, that's 02:19PM
16 true, but if there's additional information and it
17 causes me to modify or change an opinion, I can't
18 simply ignore that information.

19 **Q** Are you in the process of --

20 **A** I'm sorry. 02:20PM

21 **Q** Are you in the process of modifying or
22 changing your opinions?

23 **A** I am not, but there's new information that has
24 become available both from new data that were
25 generated, and I'm sure there will be more data 02:20PM

1 generated that could cause modification to those.

2 Q All right. Let's explore, continue to explore

3 this opinion about people go to far away places and

4 get sick. From what I've heard thus far, am I

5 correct, sir, that you have no database from which

02:20PM

6 to draw the conclusion that there is any meaningful

7 number of these visitors, recreators to the Illinois

8 River who are leaving -- who, excuse me, do not live

9 in the counties in the Illinois River watershed?

10 A I can't point you to a reference; however, I

02:20PM

11 have read information that would indicate that

12 that's not the case or that at least it's not

13 exclusively the case.

14 Q All right. What are you referring to; what

15 did you read?

02:21PM

16 A I think what I just said was, I can't point

17 you to the reference right now. I'll be happy to

18 identify it and pass it on to you, but it is in my

19 memory and I didn't make it up.

20 Q Sir, and I -- my intention is to not sound

02:21PM

21 insulting but I may come across that way. You're a

22 toxicologist; you're a scientist?

23 A Is that the insulting part?

24 Q No, sir. I hope none of it is. You're a

25 scientist?

02:21PM

1 **A** I am.

2 **Q** What is the scientific basis for your opinion
3 that there are lots of sick people who recreate in
4 the Illinois River but go to other states where
5 their illnesses manifest?

02:21PM

6 MR. PAGE: Object to the form.

7 **Q** What is the data upon which that opinion is
8 based?

9 MR. PAGE: Same objection.

10 **A** Two parts to answer that. The first is one
11 component of what I said yesterday and again today
12 was that people go elsewhere after they've recreated
13 on the Illinois River. That elsewhere includes
14 other counties in Oklahoma. It includes nearby
15 areas of other states.

02:21PM

02:22PM

16 **Q** What's the basis for that statement?

17 **A** Let me just say what I said a moment ago,
18 which is that I have read documentation, which I
19 will endeavor to identify for you but which I cannot
20 identify right now, that is supportive of that
21 position. Until I read Dr. Caneday's statement, I
22 won't know exactly what he said and I won't be able
23 to decide how to factor that into what I know.

02:22PM

24 **Q** Well, you've already offered the opinion,
25 without regard to Dr. Caneday, so I assumed you're

02:22PM

1 prepared to defend that opinion today.

2 **A** I'm prepared to defend the opinion. I'm also
3 prepared to identify for you the source material for
4 that, but I don't recall its source at the moment.

5 **Q** Is it a study specifically identifying where 02:22PM
6 these folks travel from that come and recreate in
7 the Illinois River or as an anecdotal report that
8 people come from all over like the Department of
9 Tourism puts out?

10 **A** The Department of Tourism may very well have 02:23PM
11 information that indicates that, and it may very
12 well be those documents that I'm remembering. I'm
13 not sure I would make the distinction that you just
14 made, which is that if it's some old Department of
15 Tourism department that says many people come from a 02:23PM
16 variety of places, that I would discount it for that
17 reason. That may very well be information I would
18 use to support that opinion.

19 **Q** Do you know whether use patterns -- and let me
20 phrase this better. Do you know whether or not over 02:23PM
21 the past five years the visitors to the Illinois
22 River watershed for water-based recreation, whether
23 they're -- the distance they have traveled to come
24 to the Illinois River watershed has changed to any
25 degree? 02:24PM

1 **A** No, I don't know that.

2 **Q** Do you know to what extent the demographics of
3 the regular, or excuse me, the persons who visit the
4 Illinois River watershed for water-based recreation
5 has changed over the last five years?

02:24PM

6 **A** Is that a different question?

7 **Q** One was demographics. First one was
8 geography. This is demographics.

9 **A** No, I'm not aware of any distinction that's
10 been made there.

02:24PM

11 **Q** Do you disagree with the concept that there
12 are a significant number of the water contact users
13 in the Illinois River watershed who are locals?

14 **A** By locals, you mean the state of Oklahoma?

15 **Q** No, sir. I mean in the counties around the
16 watershed, going to fish, spend the day with the
17 family on the shoreline, have a party, go swimming,
18 go floating, all the things you do around a river.

02:24PM

19 **A** I don't have that information.

20 **Q** All right. Let me rephrase the question so
21 the Record is clear. Do you have -- do you disagree
22 with the statement that a significant number of the
23 users of water-based recreation in the Illinois
24 River are people who live in the counties in and
25 proximal to the Illinois River?

02:25PM

02:25PM

1 **A** I would not disagree with that as you stated
2 it.

3 **Q** All right. If there was a significant
4 percentage of those folks becoming ill, why wouldn't
5 it show up in the county statistics?

02:25PM

6 **A** Maybe I wasn't clear the first time. There
7 are a couple of reasons. One is that people may or
8 may not live in the counties that immediately abut
9 the Illinois River. They may be locals as you have
10 phrased it but not immediately adjacent counties.

02:26PM

11 There is a delay in the onset of a bacterial
12 illness, whether it be respiratory or whether it be
13 gastrointestinal or whether it be something else.

14 That complicates anybody's ability or understanding
15 of where they became ill and makes it difficult to
16 determine that, not impossible but difficult, and I

02:26PM

17 think the recent Salmonella issue nationwide has
18 shown those difficulties. A passive reporting
19 system isn't designed and can't generate the

20 information you want it to generate. It can't. I
21 think there are significant instances of illness

02:26PM

22 that are reported in the counties that abut the
23 Illinois River. They're clearly not all of them for
24 the reasons that I've said so far. I wouldn't go so
25 far to say they're meaningless, but I certainly

02:27PM

1 think that they are limited in the ability to draw
2 information from them.

3 Q How many of the cases of reported infectious
4 disease in the counties in the Illinois River
5 watershed can you prove are caused from either
6 recreational body contact with the waters in the
7 Illinois River or consumption of groundwater in the
8 Illinois River?

02:27PM

9 A The system is not set up to allow one to do
10 that. I can't prove any individual case and its
11 source. I don't believe that information is present
12 in the passive reporting system as it exists.

02:27PM

13 Q Are you going to offer at trial an opinion
14 stated to a reasonable degree of scientific
15 certainty that any specific number of people have
16 become ill as a consequence of recreating in the
17 Illinois River watershed?

02:27PM

18 A I don't expect to produce a specific number.
19 I expect to testify that it's likely that that's
20 occurring and that the numbers could be large based
21 on the bacterial counts and the activities that we
22 know of that are conducted in the Illinois River
23 watershed throughout the recreational season.

02:28PM

24 Q And what does large mean; what's the number --
25 what are you going to tell the jury, Dr. Teaf?

02:28PM

02:28 PM

02:29PM

02:29PM

02:29PM

02:29PM

1 why the standards are set where they are. There is
2 a specific recognition that even at the -- even at
3 the surface water standard, there is a .8 to 1
4 percent accepted incidence rate of illness, and so
5 given the breadth and the consistency of the
6 bacterial data, somebody could go out and do the
7 kind of epidemiologic study you're talking about. I
8 don't need it to form the opinion that I have but
9 others may.

02:30PM

10 **Q** All right. What you just recited, the primary
11 body contact recreation standards, the health risk
12 criteria, I interpreted your testimony that that is
13 the basis for your opinion, and I'm asking you how
14 do we test whether that is correct or not through an
15 independent means, and I feel like you took me right
16 back to the basis for the hypothesis. How do we
17 test it; it would take an epidemiological study; is
18 that your testimony?

02:30PM

02:31PM

19 **A** I think it would take a very expensive and
20 detailed study that still might not produce the
21 results that you seek because of the inherent
22 limitations of that kind of a system, that kind of a
23 study. I have not advocated doing that study to the
24 State. No one from the State has told me that they
25 plan to do that. I suppose the industry could do

02:31PM

02:31PM

1 that if they wanted to, but I haven't seen any
2 indication that that's going to occur.

3 Q All right, and the state of the evidence
4 today, and I think we all agree after spending
5 almost two days together, is you have stated your 02:31PM
6 opinion that there's a likelihood that people have
7 become ill and, however, we have not identified any
8 such person and verified the source of their illness
9 was contact with the water; that is the state of the
10 evidence today; would you agree? 02:32PM

11 A For any individual, I believe that is the
12 state of the evidence. That's just not -- as I've
13 said several times now, in my view that's not --
14 that's a different opinion.

15 Q I understand. Let's talk a little bit 02:32PM
16 about -- tell me about your professional experience
17 in evaluating the fate and transport of bacteria in
18 environmental media. Tell me -- let's start with
19 porous media. What's your expertise in evaluating
20 the fate and transport of bacteria through porous 02:33PM
21 media?

22 A I have no specific expertise in that area.

23 Q All right. How about as it relates to
24 groundwater; fate and transport of bacteria in
25 groundwater, do you have any particular expertise in 02:33PM